Protection of new growth with cyazofamid

Johan Desnouck & Jos Testers
Protection in growing phase

• Protection in the growing phase is one of the important challenges for the farmers.
  – Spraying on advise of the warning systems
  – Spraying with calendar fungicide programmes
    • use of fungicides with a systemic active ingredient, e.g. Fubol Gold, Epok, Merlin, Consento,…
    • use of non-systemic fungicides on a short interval
The growing period takes longer than only two weeks.
A leaf is growing,...
Development of leaves in one week
Protection of the new leaves: strategies

- RETROACTIVE TREATMENT
- UNPROTECTED GROWTH
- PREVENTIVE CONTACT PRODUCT
- PART TO PROTECT PREVENTIVELY BETTER

Interval in days

ref: PPO LELYSTADT, Huub SCHEPERS
Research ‘new growth protection’ with Ranman

- SAC 2006
- UK 2004
- IWT 2002
- IWT 2003
- SPRV 2004
- RC FLAKKEBJERG 2005
- PPO 2001
- PPO 2002
- PPO 2004
- LWK NDS PSA OL 2004
- LWK NRW PSA Bonn 2004
- LWK NDS PSA OL 2005
- DLR RP RNH 2006
Used dose rates

- Ranman: Cyazofamid + Adjuvant 0.2 + 0.15 l
- Epok: Mefenoxam + Fluazinam 0.5 l
- Shirlan: Fluazinam 0.4 l (UK 0.3 l)
- Ridomil Gold: Mefenoxam + Mancozeb 2.5 kg
- Curzate: Cymoxanil + Mancozeb 2.5 kg
- Tattoo C: Propamocarb + Chlorothalonil 2.0 – 2.5 l
- Dithane DG: Mancozeb 2.0 kg
- Sereno: Fenamidone + Mancozeb 1.5 kg
- Unikat Pro: Zoxamide + Mancozeb 1.8 kg
- Tanos: Famoxate + Cymoxanil 0.6 - 0.7 kg
- Valbon: Benthiavalicarb + Mancozeb 1.6 kg
- Acrobat (Invader): Dimethomorph + Mancozeb 2.0 kg
IWT TRIAL 2002

% PROTECTED NEW GROWTH

0 10 20 30 40 50 60 70 80 90 100

7 DAT

- Untreated
- Dithane
- Ranman
- Acrobat Plus
- Shirlan
- Curzate
- Tanos
- Unikat Pro
- Tattoo C
- Sereno
IWT trial 2003
G. Haesaert, B. Heremans  Belgium
IWT TRIAL 2003

% PROTECTED NEW GROWTH

- Untreated
- Dithane
- Ranman
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- Shirlan
- Curzate
- Tanos
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- Tattoo C
- Sereno

7 DAT
PPO trial 2004
PPO Lelystad, 2004

% INFECTED NEW GROWTH

LAB TRIAL   FIELD TRIAL

- Untreated
- Ranman
- Shirlan
- -
- Untreated
- Ranman
- Shirlan
Growing Point leaflets inoculation in the field  PPO Lelystad, 2004

% INFECTED NEW GROWTH

Untreated
Ranman
Shirlan
Ref 1
Ref 2
Ref 3

7 DAT
% infestation after **one application**

![Bar chart showing % infestation after one application for different treatments.](image-url)
% infestation after **two applications**

![Bar chart showing % infestation after two applications for Dithane Ultra, Ranman, Acrobat Plus, and Shirlan.](image)
Protection of new growth, PSA Oldenburg, Dr. J. Kakau 2004

Young leaflets after artificial infection 10 DAA
PSA trial 2005

Oldenburg 2005        Dr. J. Kakau
PSA Oldenburg, Dr. Kakau

8 DAA

- untreated
- Dithane Ultra
- Curzate M
- Acrobat Plus
- Shirlan
- Ranman
DLR trial 2006
Dr. Albert, Bad Kreuznach (D)
Protection of New Growth
Dr. Albert, Bad Kreuznach (D)

% blight

untreated
Dithane Neo Tec
Ridomil
Ranman
UK trial 2004
surface leaf inoculation

% of leaves infected

<table>
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<tr>
<th>Treatment</th>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
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7 DAA
SRPV trial 2004
surface leaflets (ABC) inoculation
% area infected

Untreated
Shirlan 0.4 L
Epok 0.4 L
Ranman 0.2/0.15 L

7 DAA

Ranman
Growing Point leaflets (NP) inoculation

% area infected
Trial Danmark 2005

8 DAA

Untreated
Ranman
Ridomil Gold
Dithane NT
Shirlan

Bent Nielsen, Danish Institute of Agricultural Sciences, 2005
SAC: Infection in relation to fungicide and leaf surface - 4 dat

[Bar chart showing infection levels of different fungicides at 4 DAT (Days After Treatment).]

- Untreated
- Ranman
- Acrobat Plus
- Shirlan
- Curzate
- Concento
- Valbon
- Infinito
SAC: Infection in relation to fungicide and leaf surface - 6 dat

![Bar chart showing infection levels at 6 DAT for various fungicides: Untreated, Ranman, Acrobat Plus, Shirlan, Curzate, Concento, Valbon, and Infinito.](image)
SAC: Infection in relation to fungicide and leaf surface - 10 dat
Protection of the new leaves: average at 7 days

- Shirian 16x
- Dithane 13x
- Curzate 10x
- Acrobat 12x
- Tattoo C 10x
- Concerto 3x
- Sereno 2x
- Ridomil 6x
Protection of the new leaves: average at 7 days
Ranman ↔ ‘systemic’ products

![Bar chart showing protection of new leaves for different products.](chart.png)
Conclusions

- Ranman gives an outstanding tuber protection and is mostly applied at the end of the season.
- Results conducted last 5 years in internal and official trials showed an excellent preventive protection of the new growth.
- The efficacy of cyazofamid applied during the period of fast growth was comparable or better than with the systemic or partly-systemic products.
Proposal: Ranman in the EU +++ table

<table>
<thead>
<tr>
<th>Feature</th>
<th>Rating</th>
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<td>Leaf blight</td>
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<td>New growth</td>
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<tr>
<td>Stem blight</td>
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<tr>
<td>Tuber blight</td>
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<tr>
<td>Protectant</td>
<td>+++</td>
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Thank you for your attention